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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,780	02/06/2002	Russell J. Apfel	2069.009200/SFD	7591

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EXAMINER

PHAM, TUAN

ART UNIT PAPER NUMBER

2643

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/068,780	Applicant(s) APFEL, RUSSELL J.	
	Examiner TUAN A PHAM	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 33-42 is/are allowed.
- 6) ☒ Claim(s) 1-29 and 32 is/are rejected.
- 7) ☒ Claim(s) 30 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1-10, 12-18, 20-29, and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Caine et al. (U.S. Patent No.: 6,735,302, hereinafter, "Caine").

Regarding claims 1, 12, and 21, Caine teaches a method and apparatus of line card for coupling to a subscriber line, comprising (see figure 9):

a balancing network (see figure 9, ZL, col.15, ln.35-59), and

a subscriber line interface circuit adapted to drive a downstream signal on the subscriber line and receive an upstream signal on the subscriber line (see figure 9, SLIC 600, col.3, ln.1-19), the subscriber line interface circuit comprising:

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a first output terminal coupled to the subscriber line (see figure 9, output 622);
an output driver coupled to the output terminal and adapted to drive the downstream signal on the subscriber line (see figure 9, driver 802, output terminal 622, col.12, ln.44-65);

first sensing circuitry coupled to the output driver adapted to sense a current on the subscriber line to generate a first voltage (see figure 9, driver 802, sensing resistor 826, col.13, ln.52-65, the first sensing resistor generate the first output current and voltage);

a second output terminal coupled to the balancing network to provide at least a portion of the downstream signal to the balancing network (see figure 9, second output 624, ZL, col.15, ln.35-59);

second sensing circuitry adapted to sense a current in the portion of the downstream signal passing through the balancing network to generate a second voltage (see figure 9, driver 806, sensing resistor 846, col.14, ln.1-10, the second sensing resistor generate the second output current and voltage); and an upstream driver adapted to subtract the second voltage from the first voltage to generate the upstream signal (see figure 9, driver 804, upstream signal 610, col.15, ln.1-48).

Regarding claims 2, 13, and 22, Caine further teaches method and apparatus the balancing network comprises a balancing load corresponding to an expected load on the subscriber line (see figure 9, ZL, col.15, ln.35-59).

Regarding claim 4, Caine further teaches method and apparatus the output driver, first and second sensing circuitries, and upstream driver are contained in a

subscriber line interface circuit chip (see figure 9, SLIC 600, drivers 802, 806, sensing circuitries 826, 846, upstream driver 804).

Regarding claim 5, Caine further teaches method and apparatus the balancing network (i.e., hybrid balance) is external to the subscriber line interface circuit chip (see col.12, ln.14-27).

Regarding claims 6, 15, and 25, Caine further teaches method and apparatus the first sensing circuitry comprises a sensing resistor coupled between the output driver and the subscriber line (see figure 9, driver 802, sensing circuit 802, col.13, ln.52-65).

Regarding claims 7, and 26, Caine further teaches method and apparatus an output terminal of the sensing resistor is coupled to the upstream driver to provide the first voltage (see figure 9, sensing resistor 826, upstream driver 804).

Regarding claims 8, 16, and 27, Caine further teaches method and apparatus the second sensing circuitry comprises a sensing resistor coupled between the output driver and the balancing network (see figure 9, sensing resistor 846, balancing network ZL, col.15, ln.35-59).

Regarding claims 9, 17, and 28, Caine further teaches method and apparatus an output terminal of the sensing resistor is coupled to the upstream driver to provide the second voltage (see figure 9, sensing resistor 846, upstream driver 804).

Regarding claims 10, 18, and 29, Caine further teaches method and apparatus wherein the first sensing circuitry comprises a first sensing resistor coupled between the output driver and the subscriber line, an output terminal of the resistor is coupled to the

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upstream driver to provide the first voltage, the second sensing circuitry comprises a second sensing resistor coupled between the output driver and the balancing network, and an output terminal of the second sensing resistor is coupled to the upstream driver to provide the second voltage (see figure 9, first sensing resistor 826, driver 802, upstream driver 804, second sensing resistor 806, driver 806, balancing network ZL).

Regarding claim 20, Caine further teaches method and apparatus the subscriber line interface circuit further comprises an amplifier coupled to the echo cancellation circuit and being adapted to amplify the upstream signal (see col.12, ln.14-27).

Regarding claim 24, Caine further teaches method and apparatus wherein driving the downstream signal comprises driving the downstream signal with an output driver (see figure 9, downstream driver 802).

Regarding claim 32, Caine further teaches method and apparatus comprising amplifying the upstream signal (see figure 9, upstream amplifier 804).

Regarding claims 3, 14, and 23, Caine further teaches a method and apparatus of line card for coupling to a subscriber line, comprising: the balancing network further comprises a protection resistor (see figure 9, resistor ZL).

3. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caine et al. (U.S. Patent No.: 6,735,302, hereinafter, "Caine") in view of Randahl (U.S. Patent No.: 5,734,712).

Regarding claim 11 and 19, Caine teaches a method and apparatus of line card for coupling to a subscriber line, comprising (see figure 9):

a balancing network (see figure 9, ZL, col.15, ln.35-59), and

a subscriber line interface circuit adapted to drive a downstream signal on the subscriber line and receive an upstream signal on the subscriber line (see figure 9, SLIC 600, col.3, ln.1-19), the subscriber line interface circuit comprising:

a first output terminal coupled to the subscriber line (see figure 9, output 622);

an output driver coupled to the output terminal and adapted to drive the downstream signal on the subscriber line (see figure 9, driver 802, output terminal 622, col.12, ln.44-65);

first sensing circuitry coupled to the output driver adapted to sense a current on the subscriber line to generate a first voltage (see figure 9, driver 802, sensing resistor 826, col.13, ln.52-65, the first sensing resistor generate the first output current and voltage);

a second output terminal coupled to the balancing network to provide at least a portion of the downstream signal to the balancing network (see figure 9, second output 624, ZL, col.15, ln.35-59);

second sensing circuitry adapted to sense a current in the portion of the downstream signal passing through the balancing network to generate a second voltage

(see figure 9, driver 806, sensing resistor 846, col.14, ln.1-10, the second sensing resistor generate the second output current and voltage); and an upstream driver adapted to subtract the second voltage from the first voltage to generate the upstream signal (see figure 9, driver 804, upstream signal 610, col.15, ln.1-48).

It should be noticed that Caine fails to clearly teach the subscriber line interface circuit chip comprises an output terminal coupled to the subscriber line, and the circuit further comprises a protection resistor coupled between the output terminal and the subscriber line. However, Randahl teaches such features (see figure 1, protection resistor RS1, col.3, ln.20-25) for a purpose of matching impedance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of the subscriber line interface circuit chip comprises an output terminal coupled to the subscriber line, and the circuit further comprises a protection resistor coupled between the output terminal and the subscriber line, as taught by Randahl, into view of Caine in order to protect the circuitry from over voltage or damage the component.

Allowable Subject Matter

4. Claims 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 33-42 are allowed.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Gammel et al. (U.S. Patent No. 5,974,363), Vulih et al. (U.S. Patent No. 5,717,736), Papadopoulos (U.S. Patent No. 6,731,751), and Chen et al. (Pub. No.: U.S. 2003/0112963) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for providing data and voice services on the telephone line by teaching the subscriber line interface circuit.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

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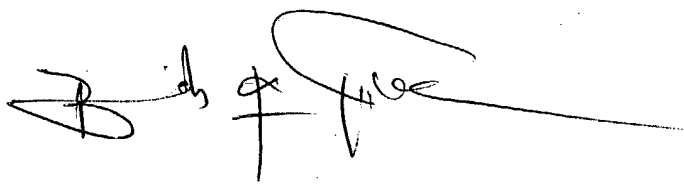
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Art Unit 2643
October 27, 2004
Examiner

Tuan Pham



BINH TIEU
PRIMARY EXAMINER